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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/637,127	08/08/2003	Nachappa Gopalsami	ANL-IN-02-083	3832

7590

06/29/2005

Joan Pennington  
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EXAMINER
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LEVKOVICH, NATALIA A

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/637,127	Applicant(s) GOPALSAMI ET AL.	
	Examiner Natalia Levkovich	Art Unit 1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 08 August 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
     4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
    - I. Claims 1-12, drawn to a dielectric detection method, classified in class 436, subclass 149.
    - II. Claims 13-20, drawn to a dielectric detection apparatus, classified in class 422 subclass 98.
  2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be employed to practice a variety of methods different from the claimed one, for example, for measuring dielectric film thickness.
  3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
  4. During a telephone conversation with Ms. Joan Pennington on 06/03/05 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-12.
- Affirmation of this election must be made by applicant in replying to this Office action. Claims

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13-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 and 8-12 are rejected under 35 U.S.C. 102(b) as anticipated by any of Nagata et al. (USP 6,496,018) or Tews et al. (USP 5,397,993).

Nagata discloses a method for measuring dielectric constant comprising:

providing a dielectric resonator;

detecting resonance patterns by “varying the dielectric constant and thickness of the standard sample ...; the variation of the resonance frequency [‘resonant frequency shift’ – Examiner] of the dielectric resonator ...) is measured for each varied dielectric constant and thickness [ / concentration – Examiner] to draw a calibration curve of the varied resonance frequency depending on the dielectric constant and thickness’;

using the obtained patterns for material detection: “The dielectric constant of the sample is found from the measurement value and the calibration curve. The dielectric constant of not only a sheetlike sample but also a three-dimensional molded article or a liquid sample can be measured easily”-See Abstract.

Tews discloses a method for “determining the moisture content of the material of a test object using microwaves. The properties of a resonator such as resonance frequency, resonance half-width value and amplitude of the resonance can be measured using a ... microwave generator. By special processing of the variations in the results due to detuning of the resonator when it is being filled with a product, the moisture content of the material in the product can be measured exactly, independently of the density of the material and largely independently of the type of material and of changes in additives... In addition, there are no special requirements concerning the shape of the sample”(Abstract;).

7. Claims 1 and 8-12 are rejected under 35 U.S.C. 102(e) as anticipated by Scott (20020005725).

Scott discloses microwave spectroscopy methods for substance characterization related to determination of the range of dielectric constant change in a medium. In particular, “frequencies resonant cavity techniques” have been disclosed, when a sample “is placed in a resonant cavity to measure the loss and frequency shift with a external microwave frequency source that can be swept across the resonance with and without the sample in the cavity”(See [0047], [0066]).

The claimed methods include the step of developing calibration curves necessary for determination of the analytes, for example, the techniques are used to identify analyte concentrations (See [0063],[0210], [0218]).

*Claim Rejections - 35 USC § 103*

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott

(20020005725) in view of Lautenschlager (USP 5,382,414).

Scott does not specify cavity resonators having cavity adjusting means, gas inlets / outlets and sample holders at the end of the cavity.

Lautenschlager discloses a pressure vessel "formed as a resonator i.e. the diameter and height of its hollow interior are selected and adapted to the ... frequency range of the microwaves generated by the magnetron ... so as to obtain the field strengths desired for the reaction to be carried out ... By securing the piston rod 18 and thus the base plate 19 at the corresponding stroke height within the pressure vessel 4.1 the height of the hollow interior can

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be adjusted and thus the resonator can be tuned". The reactor is equipped with as inlets/ outlets (Col.2, line15; Col.4, lines 30-45). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed means for resonator tuning and means for sample supply arranged at the optimal (in terms of electromagnetic field configuration) location of the cavity in the modified apparatus of Scott, in order to enhance the accuracy of the measurements.

11. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott (20020005725) in view of Madaras et al. (US 20030012867).

Scott does not specifically teach a parallel plate resonator, although Scott does teach resonators employed in the wide range of frequencies encompassing the claimed range (See, for example, [0066], [0212], [0221]). Madaras discloses a resonant sensor comprising parallel plates (See, for example, [0051]). ). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed any suitable (depending on the nature of analyte and numerous other factors) type of resonator known in the art, including a parallel plate or cylinder resonator, in the modified apparatus of Scott, in order to allow implementation of the claimed method.

### *Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lewis (USP 6,890,715).


13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalia Levkovich whose telephone number is 571-272-2462.

The examiner can normally be reached on Mon-Fri, 8 a.m.-4p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jill Warden  
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Technology Center 1700